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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,780	03/07/2002	Mohamend El-Sherbeini	20519P	9669

210 7590 01/15/2004

MERCK AND CO INC
P O BOX 2000
RAHWAY, NJ 070650907

EXAMINER	
PORTNER, VIRGINIA ALLEN	

ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 01/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,780	EL-SHERBEINI ET AL.	
	Examiner	Art Unit	
	Ginny Portner	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *10/27/2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-11,15 and 17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *8* is/are allowed.

6)☐ Claim(s) *1-7,9-11,15 and 17* is/are rejected.

7)☐ Claim(s) *2-4 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-11, 15 and 17 are pending.
Claims 12-14 and 16 have been canceled.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Allowable Subject Matter

2. Claim 8 defines over the prior art of record and is therefore allowed.

Objections and Rejections Withdrawn

3. Figure 2 has been submitted; the described Figure has been furnished as required under 37 CFR 1.81.

4. The objections raised with respect to page 1, lines 4-11, the phrases "CROSS-REFERENCE TO RELATED APPLICATIONS Not applicable"; 'STATEMENT REGARDING FEDERALLY-SPONSORED R&D Not applicable"; "REFERENCE TO MICROFICHE APPENDIX Not applicable", after which an amendment to refer to other applications has been inserted has been addressed and obviated.

5. The objections raised with respect to page 1, lines 23-24, the phrase --a single molecule composed of peptidoglycan--, has been addressed and obviated.

6. Claim 5 rejected under 35 USC 101, in light of the amendment of claim 5 to comprise an isolated and purified polynucleotide that comprises a polynucleotide of claim 1; the claimed invention is no longer directed to non-statutory subject matter.

7. Claims 1, 8, 9, 11, 15, 17 rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, has been obviated by amending independent claims 8, 9 and 15 to recite SEQ ID NO 2, an embodiment for which original descriptive support has been provided by the instant specification.

8. Claims 1-7 rejected under 35 U.S.C. 112, second paragraph for reciting the phrase "having an amino acid sequence of SEQ ID No 2"; what portion of SEQ ID NO 2 has been selected to be encoded by the claimed polynucleotide that has no defined biological function and is not limited to have the entire amino acid sequence of SEQ ID NO 2, in light of the amendment of claim 1 to recite the phrase "the amino acid sequence of SEQ ID NO 2".

9. Claim 5 rejected under 35 USC 112, second paragraph for reciting the non-specific article "A", thus not specifically referring back to the polynucleotide of claim 1, has been obviated through amendment of claim 5 to recite the phrase –isolated and purified--

10. Claim 8 rejected under 35 U.S.C. 112, second paragraph for reciting the phrase "having an amino acid sequence of SEQ ID No 2" , has been obviated by amendment of claim 8 to be limited to a polypeptide that has the amino acid sequence of SEQ ID NO.: 2.

11. Claims 11, 16 and 17 are no longer rejected under 35 USC 112, second paragraph for reciting the term "relative activity", in light of claim 16 having been canceled, and claims 9 and 11 having been amended to recite the utilization of a polypeptide having the amino acid sequence of SEQ ID NO 2, and claims 11 and 17 providing for a point of reference to determine relative inhibitory activity of the candidate compound.

12. Claims 15 and 17 rejected under 35 U.S.C. 102(e) as being anticipated by Chabin et al (US Pat. 5,891,621) in light of Eveland et al (1997), in light of the amendment of claim 15 to recite a non-obvious species of murC polypeptide, specifically SEQ ID No 2.

13. Claims 8, 9, 11, 15 and 17 rejected under 35 U.S.C. 102(a or e) as being anticipated by Smithkline Beecham Corporation (EP0889123 A2), in light of the amendment of claims 8, 9 and 15 to recite the specific SEQ ID NO 2 polypeptide.

Objections and Rejections Maintained

14. The disclosure objected to because of the following informalities: The specification at pages 20-21 evidences blank lines; information is missing. No new matter should be submitted. Appropriate correction was not made, and therefore maintained.

15. Claim 6 rejected under 35 USC 101, in light of claim 6 not having been amended to comprise the isolated and purified polynucleotide of claim 5, but must only be a host cell that comprises the polynucleotide of claim 5, which need not be heterologous or isolated and purified; the host cell of claim 6 uses claim 5 to define the nucleotide, but the hand of man is not evident in claimed host cell.

16. Claims 2-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

17. Claims 6 rejected under 35 USC 112, second paragraph for reciting the non-specific article "A and not reciting the phrase –isolated and purified--, because the claimed host cell reads on a native Pseudomonas aeruginosa cell or any cell that comprises any of the polynucleotides of claim 1.

18. Claims 9-10 and 15 rejected under 35 USC 112, second paragraph for reciting the relative term "relative activity" still renders the claims indefinite, despite the fact that claims 9 and 15 have been amended to recite SEQ ID NO 2, as no point of reference for determining inhibitor activity is provided, as no reference level of MurC activity for the cells or polypeptide is determined prior to contacting the cell(s) or polypeptide with the candidate compound.

19. Claims 4 and 10 rejected under 35 USC 112, second paragraph for reciting the phrase "the nucleotide sequence of SEQ ID NO 1"; this phrase lacks antecedent basis in independent claim form which they depend.

20. Claims 1-6 rejected under 35 U.S.C. 102(b) as being anticipated by Eveland et al (1997), for reasons of record.

21. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by WO98/03533 (Oligos etc. and Oligos Therapeutics, Inc., January 29, 1998), for reasons of record.

22. Claims 1-7 rejected under 35 U.S.C. 102(a or e) as being anticipated by Smithkline Beecham Corporation (EP0889123 A2), for reasons of record.

Response to Arguments

23. Applicant in response to the objection to the specification for informalities, specifically pages 20-21 evidencing blank lines states that "the information missing from pages 20-21" will be provided as soon as it is located.

24. The objection is maintained as the blank lines still exist in the specification.

25. The rejection of claim 6 under 35 USC 101, is traversed on the grounds that: The host cell carrying a recombinant gene can be considered to exist in nature.

26. It is the position of the examiner that claim 6 does not recite the phrase "recombinant gene"; if it did, then this rejection could be obviated. The host cell is not a recombinant host cell, or an isolated and purified host cell, or a host cell that comprises the heterologous expression vector of claim 5. The dependence of claim 6 upon claim 5 defines the polynucleotide in the host cell, but does not require the polynucleotide to be heterologous to the host cell or to be a recombinant gene to the host cell. Naturally occurring nucleic acids are expression vectors, the nucleic acid is not in a host cell that is not Pseudomonas aeruginosa. How would the expression vector upon insertion in to a Pseudomonas aeruginosa host cell chromosome that comprises a polynucleotide that encodes SEQ ID NO 2, displacing the native nucleic acid sequence of SEQ

ID NO 2, differ from the host cell in it's native state? Amendment of claim to be commensurate in scope with Applicant's arguments could obviate this rejection.

27. The rejection of claims 2-7 under 35 U.S.C. 112, first paragraph (written description, the basis of enablement), as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention is traversed on the grounds that "the claims have been amended generally to change said phrase the "having the amino acid sequence of SEQ ID NO :2".

28. It is the position of the examiner that claims 2 and 3 are directed to polynucleotide sequences that evidence non-natural and modified nucleotides, the changes of which do not correspond to any specific sequence to encode any specific polypeptide of any specific biological activity, and is directed to a polynucleotide that comprises the polynucleotide of claim 1(b) which is not directed to a polynucleotide that encodes a polypeptide and is not required to be a sequence of any specific size, but must only be a sequence that is complementary to the coding sequence of SEQ ID NO:2. The sequences of claim 1(b) may be any sequence of 2 or more nucleotides in length. The genus of polynucleotides that comprise the polynucleotide of claim 1(b) has not been described, what has not been described has not been enabled; only a scope of what is now claimed has been described in such a way that one of skill in the art would have realized that Applicant had possession of the invention at the time of filing.

Claim 4 is directed to a polynucleotide that comprises the nucleotide sequence of SEQ ID NO 1; a genus polynucleotide sequences which evidences sequences that are 5' and 3' to SEQ

ID NO 1 have not been described, and what is now claimed does not encode a polypeptide of any specific sequence, no less a Pseudomonas aeruginosa MurC polypeptide with MurC activity.

Claim 5 is directed to a genus of polynucleotides that do not encode a polypeptide of any specific sequence or biological function or activity nor is the polynucleotide claimed to have been derived from any specific source. The polynucleotide of claim 5 comprises any polynucleotide of claim 1, the size and sequence that the claimed polynucleotide comprises is unclear, and the genus of polynucleotides that comprise any portion of the polynucleotide of claim 1 has not been described.

Claim 6 is directed to a host cell that comprises the polynucleotide of claim 5; in view of the fact that the genus of polynucleotides of claim 5 evidence original descriptive support, the genus of host cells also has not been described.

Claim 7 which is directed to a genus of processes for expressing a MurC protein of Pseudomonas aeruginosa [redacted] has not been described, in light of the fact that claim 5, is not directed to a genus of isolated polynucleotides that encode Pseudomonas aeruginosa MurC polypeptides; the polynucleotides of claim 5 are not required to encode a polypeptide of any specific biological function or activity, nor to comprise any specific consensus or conserved sequence that conveys Pseudomonas aeruginosa MurC activity. In view of the fact that the vector and host cell do not encode a genus of MurC proteins, the genus of processes for expressing a genus of MurC proteins of Pseudomonas aeruginosa [redacted] has not been described. In light of the fact that written description is the basis for enablement, the instant specification not evidencing original descriptive support for the full scope of what is now claimed, the instantly

claimed process is also not enabled for the full scope of the claims. The rejection is maintained for reasons of record.

29. The rejection of claim 6 under 35 USC 112, second paragraph for reciting the non-specific article "A and not reciting the phrase --isolated and purified--, is traversed on the same grounds used to traverse the rejection under 35 USC 101, and is incorporated by reference to the arguments made thereto.

30. It is the position of the examiner that the claimed host cell does not comprise a recombinant gene; Applicant's arguments are not commensurate in scope with what is now claimed. The host cell does not comprise a heterologous or recombinant polynucleotide. Amendment to recite the combination of claim limitations used to traverse this rejection could obviate the rejection under 35 USC 112, second paragraph and 35 USC 101.

31. The rejection of claims 9-10 and 15 under 35 USC 112, second paragraph for reciting the relative term "relative activity" is traversed on the ground that "Applicant reminds the Examiner that he is free to be his own lexicographer and need not use the Examiner's preferred phasing" and running a control is common practice.

32. It is the position of the examiner that activity of the MurC protein is not determined relative to anything. No comparison can be made to determine a relative activity, as no point for determining any other activity has been set forth in the claims. The activity of the candidate compound has not been defined. The activity of the MurC polypeptide was not determined prior to contacting the candidate compound, therefore, inhibition of activity cannot be determined.

The issue raised by the examiner is not lexicography, but "relative activity". In order to determine a relative activity, the activity must be compared relative to something else. No comparison step is recited in the claims, nor is the utilization of a control recited. The rejection is maintained for reasons of record.

33. The rejection of claims 4 and 10 under 35 USC 112, second paragraph for reciting the phrase "the nucleotide sequence of SEQ ID NO 1"; the phrase lacking antecedent basis in independent claim from which they depend, is not addressed; the rejection is maintained.

34. The rejection of claims 1 (b), 2-6 under 35 U.S.C. 102(b) as being anticipated by Eveland et al (1997), is traversed on the grounds that the claims have been amended, thus obviating the rejection.

35. It is the position of the examiner that Eveland et al still anticipate the instantly claimed invention as Eveland et al discloses a polynucleotide complementary to the coding sequence of SEQ ID NO, and comprises a conserved consensus sequence of MurC protein/polypeptides. The polynucleotide of claim 1(b) includes within its scope sequences that encode the conserved MurC polypeptide consensus sequence. The rejection is maintained for reasons of record.

36. The rejection of claims 1 (b)-2 rejected under 35 U.S.C. 102(b) as being anticipated by WO98/03533 (Oligos etc. and Oligos Therapeutics, Inc., January 29, 1998), is traversed on the grounds that the claims have been amended.

37. It is the position of the examiner that claims 1(b) and claims that depend therefrom still read on the applied prior art.

38. The rejection of claims 1(b)-7 under 35 U.S.C. 102(a or e) as being anticipated by Smithkline Beecham Corporation (EP0889123 A2) is traversed on the grounds that the claims have been amended.

39. It is the position of the examiner that claims 1(b) and claims that depend therefrom still read on the applied prior art.

New Combination of Claim Limitations/New Grounds of Rejection

Claim Objections

40. Claims 2 and 3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 2 and 3 depend from amended claim 1 and define the claimed polynucleotide to comprise "non-natural and modified nucleotides (claim 2) and non-natural linkages (claim 3). In light of the amendment of independent claim 1 to no longer recite paragraph (c) which provided for the presence of non-natural and modified nucleotides and non-natural linkages, claims 2 and 3 are no longer further limiting of claim 1, which has been amended and limited to a polynucleotide that encodes SEQ ID NO 2, a sequence that does not comprise non-natural, modified nucleotides or non-natural linkages; claims 2 and 3 are no longer further limiting of claim 1.

41. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 4 depends from claim 1 and recites the phrase "The polynucleotide of claim 1 comprising the nucleotide sequence of SEQ ID NO 1". The purified and isolated polynucleotide of claim 1 is not defined to "comprise" the sequence of SEQ ID NO 1; while SEQ ID NO 2 is encoded by SEQ ID NO 1, the polynucleotide of claim 1 is not so claimed to comprise SEQ ID NO 1, but "selected from the group consisting of" either the coding

sequence of the polypeptide or is a fragment defined by the phrase "a polynucleotide which is complementary to the polynucleotide of (a)". The polynucleotides of claim 4 are claimed to comprise SEQ ID NO 1, which is broader in scope than the polynucleotide of claim 1. What is 5' or 3' to the sequence that encodes SEQ ID NO 2? If what is intended by the language of claim 4, a "wherein" clause could possibly obviate this rejection, ----wherein the polynucleotide of that encodes SEQ ID NO 2, consists of SEQ ID NO 1.----

42. Amended Claim 9 is objected to because of the following informalities: Claim 9 in paragraph (a) recites the phrase "at least one host cell", which paragraph (b) recites the phrase "at least one of said cells"; both a singular and plural tense of the term "cell" are recited in the claim. The claim would be made clear through the amendment of paragraph (b) to recite – contacting said at least one cell -- to have the claim recite the same tense of the term "cell". Appropriate correction is required.

Claim Rejections - 35 USC § 112

43. Amended claims 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: culturing the host cell under conditions which allow expression of the MurC polypeptide from said expression vector; measuring the Pseudomonas aeruginosa MurC polypeptide expressed by the host cell, contacting the host cell expressing the Pseudomonas aeruginosa MurC polypeptide with a candidate compound; and measuring any change in Pseudomonas aeruginosa MurC polypeptide activity. While the

claimed method provides a host cell that comprises an expression vector that encodes a polypeptide of SEQ ID NO 2, the cells do not express the polypeptide from the vector, thus the MurC polypeptide recited in the claims need not be the MurC polypeptide encoded by the expression vector. The invention is not distinctly claimed as the method omits essential methods steps, and clearly setting forth a method that would determine the presence of a candidate inhibitor of Pseudomonas aeruginosa MurC polypeptide as recited in the preamble of the claims.

44. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 is directed to a method of expressing a MurC protein and depends from amended claims 5 and 1, claim 5 being directed to an expression vector that comprises a polynucleotide of claim 1; the polynucleotide of claim 1 being either the coding sequence for SEQ ID NO 2 (paragraph (a)), or a polynucleotide that is complementary to all or a portion of the polynucleotide that encodes SEQ ID NO 2 (the portions defined within the scope of the phrase "a polynucleotide which is complementary to the polynucleotide of (a)", as no specific size is required for the complementary polynucleotide of paragraph 1(b). It is not clear that the purified and isolated polynucleotide that encodes a polypeptide and expressed in the method of claim 7 is a MurC protein of Pseudomonas aeruginosa. The term "protein" recited in claim 7 lacks antecedent basis in claims 5 and 1 from which it directly or indirectly depends, which recite the terms "polypeptide" and "amino acid sequence".

Additionally, claim 7 is unclear for not requiring the expression vector of claim 5 to comprise a coding sequence of an amino acid sequence. Claim 5 comprises "a polynucleotide of claim 1". Claim 1, is directed to a plurality of embodiments which may be coding or non-coding (anti-sense) polynucleotides. In paragraph (b) of claim 1, what is claimed is "a polynucleotide that is complementary to the polynucleotide of (a). The complementary polynucleotide may be a sense or anti-sense complementary polynucleotide sequence and is therefore not required to encode a polypeptide in paragraph (b) of claim 1. Claim 5 depends

from claim 1 and comprises any of the recited polynucleotides of claim 1. Claim 7 depends from claim 5 and utilizes any of the expression vectors of claim 5, which need not encode and express a polypeptide or protein, but could express anti-sense polynucleotide sequences. The transformed host cell of paragraph (a) in claim 7, would not express a protein if the sequence were an anti-sense polynucleotide in the expression vector of claim 5. The invention is not distinctly claimed, in light of the expression vectors of claim 5 are not required to express a polypeptide or a protein.

Conclusion

45. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

46.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginny Portner whose telephone number is (703)308-7543. The examiner can normally be reached on Monday through Friday from 7:30 AM to 5:00 PM except for the first Friday of each two week period.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith, can be reached on (703) 308-3909.

The Group and/or Art Unit location of your application in the PTO will be Group Art Unit 1645. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to this Art Unit.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vgp

December 29, 2003

LYNETTE R. F. SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600